	Application No.	Applicant(s)
Notice of Allowability	09/996,014	POLUZZI ET AL.
	Examiner	Art Unit	
	Michael B. Holmes	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *November 28, 2001*.

2. ☒ The allowed claim(s) is/are *1-40*.

3. ☒ The drawings filed on *28 November 2001* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some*   c) ☐ None of the:
        1. ☐ Certified copies of the priority documents have been received.
        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .
    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
        Paper No./Mail Date _____ .
    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)
1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 11282001
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other *Issue Classification*.

UNITED STATES PATENT AND TRADEMARK OFFICE

P.O. Box 1450, Alexandria, Virginia 22313-1450 – www.uspto.gov

Examiner's Detailed Office Action

1.   Claims 1-40 are allowed.

REASONS FOR ALLOWANCE

2.   The following is an Examiner's statement for reasons for allowance:

3.   The closest prior art *Graf et al.* (USPN 6,208,981), *Baraszu* (USPN 5,371,695) &

Kanaya (USPN 5,220,373) do not teach or render obvious applicant's claimed invention.

In particular, as pointed out below, the prior art lacks certain features and the combination

as specified in the respective claims.

4.   With regards to claim 1 *Graf et al., Baraszu & Kanaya* do not disclose " ... *a signal-*

feature calculating unit receiving input samples of a signal to be filtered and generating signal

features; a neuro-fuzzy network receiving said signal features and generating reconstruction

weights; and a moving-average reconstruction unit receiving said input samples and said

reconstruction weights, and generating output samples from said input samples and said

reconstruction weights."

5.   With regards to claim 23 *Graf et al., Baraszu & Kanaya* do not disclose " ... *calculating*

signal features from input samples of a signal to be filtered; calculating reconstruction weights

from said signal features using a neuro-fuzzy network; and reconstructing, from said input

samples and said reconstruction weights and using a moving-average filter, an output signal

including a plurality of output samples."

6.   With regards to claim 37 *Graf et al., Baraszu & Kanaya* do not disclose " ... *a signal-*

feature calculating circuit configured to receive input samples of a signal to be filtered and to

generate signal features therefrom; a neuro-fuzzy network circuit coupled to the signal-feature

calculating circuit and configured to receive the signal features and to generate reconstruction

weight signals therefrom; a moving-average reconstruction circuit coupled to the neuro-fuzzy

network circuit and configured to receive the input samples and the reconstruction weight

signals and to generate therefrom output samples; and a training circuit having a first input

coupled to the moving-average reconstruction circuit for receiving the output samples, a second

input for receiving a desired output signal, and an output coupled to the neuro-fuzzy network

circuit, the training unit configured to supply on the output optimized weighting value signals."

7.   With regards to claim 38 *Graf et al., Baraszu & Kanaya* do not disclose " ... *a signal-*

feature calculating circuit configured to receive input samples of a signal to be filtered and to

generate signal features therefrom; a neuro-fuzzy network circuit coupled to the signal-feature

calculating circuit and configured to receive the signal features and to generate reconstruction

weight signals therefrom; a moving-average reconstruction circuit coupled to the neuro-fuzzy

network circuit and configured to receive the input samples and the reconstruction weight

signals and to generate therefrom output samples, the neuro-fuzzy network circuit comprising

fuzzification neurons receiving the signal features of the input sample and configured to generate

first-layer outputs defining a confidence level of the signal features with respect to preset membership functions, fuzzy neurons of an AND type receiving the first layer outputs and configured to generate second-layer outputs derived from fuzzy rules, and a defuzzification neuron receiving the second-layer outputs and configured to generate a reconstruction weight signal for each of the input samples using a center-of-gravity criterion; and a training circuit having a first input coupled to the moving-average reconstruction circuit for receiving the output samples, a second input for receiving a desired output signal, and an output coupled to the neuro-fuzzy network circuit, the training unit configured to supply on the output optimized weighting value signals."

8.   With regards to claim 39 *Graf et al., Baraszu & Kanaya* do not disclose " ... *a first splitting stage receiving input samples of a signal to be filtered and generating at least two streams of samples to be filtered; a neuro-fuzzy filter for each stream of samples to be filtered, each neuro-fuzzy filter generating a respective stream of filtered samples and comprising: a signal-feature calculating circuit receiving one of the at least two streams of samples to be filtered and configured to generate signal features therefrom; a neuro-fuzzy network circuit coupled to the signal-feature calculating circuit and configured to receive the signal features and to generate reconstruction weight signals therefrom; and a moving-average reconstruction circuit receiving the input samples and the reconstruction weight signals and generating output samples therefrom; and a first recomposition stage receiving a stream of filtered samples from each neuro-fuzzy filter and generating therefrom a single stream of output samples."*

9.   With regards to claim 40 *Graf et al., Baraszu & Kanaya* do not disclose " ... *a first splitting stage receiving input samples of a signal to be filtered and generating at least two*

streams of samples to be filtered; a neuro-fuzzy filter for each stream of samples to be filtered,

each neuro-fuzzy filter generating a respective stream of filtered samples and comprising: a

signal-feature calculating circuit receiving one of the at least streams of samples to be filtered

and configured to generate signal features therefrom; a neuro-fuzzy network circuit coupled to

the signal-feature calculating circuit and configured to receive the signal features and to

generate reconstruction weight signals therefrom; a moving-average reconstruction circuit

receiving the input samples and the reconstruction weight signals and generating output samples

therefrom; and a training circuit having a first input coupled to the moving-average

reconstruction circuit and receiving the output samples, a second input receiving a desired

output signal, and an output coupled to the neuro-fuzzy network circuit and configured to supply

optimized weighting value signals thereto; and a first recomposition stage receiving a stream of

filtered samples from each neuro-fuzzy filter and generating therefrom a single stream of output

samples."

Correspondence Information

10.   Any inquires concerning this communication or earlier communications from the

examiner should be directed to Michael B. Holmes, who may be reached Monday through

Friday, between 8:00 a.m. and 5:00 p.m. EST. or via telephone at (571) 272-3686 or facsimile

transmission (571) 273-3686 or email Michael.holmesb@uspto.gov.

If you need to send an Official facsimile transmission, please send it to (703) 746-7239.

If attempts to reach the examiner are unsuccessful the Examiner's Supervisor, Anthony

Knight, may be reached at (571) 272-3687.

Hand-delivered responses should be delivered to the Receptionist @ (Customer Service

Window Randolph Building 401 Dulany Street Alexandria, VA 22313), located on the first floor

of the south side of the Randolph Building.

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Monday, February 14, 2005

MBH